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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Kazuyuki MIKUBO et al.

Title: COOLING DEVICE FOR AN ELECTRONIC EQUIPMENT

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**INFORMATION DISCLOSURE STATEMENT  
UNDER 37 CFR §1.56**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

**TIMING OF THE DISCLOSURE**

The listed documents are being submitted in compliance with 37 CFR §1.97(c), before the mailing date of either a final action under 37 CFR §1.113, a notice of allowance under 37 CFR §1.311, or an action that otherwise closes prosecution in the application.

**RELEVANCE OF EACH DOCUMENT**

The documents listed on the attached PTO/SB/08 were cited as being relevant during the prosecution of the corresponding Chinese application. A partial English translation of the Chinese Office Action of May 16, 2008, follows:

1. Claim 1 claims protection for a cooling device for electronic equipment, but Cited Literature 1 (Japanese Unexamined Patent Application Publication 2002-94277A) discloses a cooling device for electronic equipment that is provided with a cooling panel 5, which has an upper heat-dissipating plate and a lower heat-dissipating plate with channels formed thereon, the upper and lower heat-dissipating plates being joined to form cooling flow routes 4A and 4B for a cooling medium, and a circulating pump 20, which is fixed to the cooling panel 5 and disperses the heat that is conducted to the cooling panel by circulating the cooling agent of the cooling flow routes (see Specification, Paragraphs 0021–0032 and Figs. 1–4). Thus, the Cited Literature 1 discloses all of the technical characteristics of Claim 1. In addition to the technical plans of both inventions being the same, the technical fields, technical problems to be solved, and predicted technical effects of Cited Literature 1 and this claim are all the same. Therefore, Claim 1 lacks novelty, as provided for in Article 22, Paragraph 2 of the Patent Law.
  
2. Claim 2 further limits Claim 1, but Cited Literature 2 (US 2002/0105781A1) discloses a heat-dissipating device for electronic equipment (see Specification, Paragraphs 0031–0037 and Fig. 2). This device uses a piezoelectric pump 11 as a circulating pump and provides motive power to circulate the cooling agent in the cooling flow routes. The actions of the piezoelectric pump of Cited Literature 2 and the pump in the present invention are the same, since they provide motive power to circulate the cooling agent in the cooling flow routes. Based on these indications, a person skilled in the art could

easily use the piezoelectric circulating pump of Cited Literature 2 in Cited Literature 1. Therefore, it would be obvious to a person skilled in the art that the technical plan of Claim 2 could be obtained by combining Cited Literatures 1 and 2. Thus, Claim 2 lacks outstanding substantial characteristics and inventive step, as provided for in Article 22, Paragraph 3 of the Patent Law.

4. Claim 8 further limits Claim 1, but Cited Literature 3 (Japanese Unexamined Patent Application Publication 2003-78271A) discloses a heat-dissipating device for electronic equipment (see Specification, Paragraphs 0028–0032 and Figs. 1–2 and 11–14). This device is provided with a circulating pump 11, a circulating route formed by a tube 9, and a liquid storage tank 13 installed on the heat-dissipating metal panel 10. Also, branching holes 12 and 27, formed in this liquid storage tank 1 [sic] and the circulating route, connect [the tank and the circulating route]. The actions of the liquid storage tank of Cited Literature 3 and the liquid storage tank of this invention are the same; both store the excess air in the circulating route in order to moderate damage to the tube caused by changes in pressure in the whole circulating route. Based on these indications, a person skilled in the art could easily conceive of using the piezoelectric circulating pump of Cited Literature 2 in Cited Literature 1. Therefore, it would be obvious to a person skilled in the art that the technical plan of Claim 8 could be obtained by combining Cited Literatures 1 and 3. Thus, Claim 8 lacks outstanding substantial characteristics and inventive step, as provided for in Article 22, Paragraph 3 of the Patent Law.

5. Claim 9 further limits Claim 8, but Cited Literature 3 (Fig. 11) illustrates a tapered part 24 with a trapezoidal shape that has the outlet of a branch hole on the bottom surface of a liquid storage tank as its apex. Thus, Cited Literature 3 discloses the additional characteristic of Claim 9. Therefore, as Claim 8 lacks inventive step, Claim 9 lacks inventive step, as provided for in Article 22, Paragraph 3 of the Patent Law.

6. Claim 10 further limits Claim 9, but in Cited Literature 3 (Fig. 12), the volume of the lower part of the storage tank, from the apex of the tapered part 24, is greater than the volume of the upper part of the storage tank, from the apex of the tapered part, and the aforementioned cooling medium fills the storage tank in such a way that the surface of the cooling medium liquid is in a higher position than the apex of the tapered part. Thus, Cited Literature 3 discloses the additional characteristic of Claim 10. Therefore, as Claim 9 lacks inventive step, Claim 10 lacks

inventive step, as provided for in Article 22, Paragraph 3 of the Patent Law.

7. Claim 12 further limits Claim 1, but in order to speed up the heat radiation of the flow route, a technical means commonly used by persons skilled in the art is to place a microchannel structure which is wider than the channel width and is formed from a plurality of narrow grooves narrower than the channel width, in part of the flow route. Therefore, as the cited Claim 1 lacks novelty, Claim 12 lacks inventive step, as provided for in Article 22, Paragraph 3 of the Patent Law.

8. Claim 16 claims protection for a cooling device for electronic equipment, but Cited Literature 1 (Japanese Unexamined Patent Application Publication 2002-94277A) discloses a cooling device for electronic equipment that is provided with a base consisting of a cooling panel 5, a cooling flow route 4A, which is formed in said cooling panel and causes the cooling agent to flow, and a circulating pump 20, which is fixed to the cooling panel 5 and causes the heat that is conducted to the cooling panel to disperse by circulating the cooling agent in the cooling flow route (see Specification, Paragraphs 0021–0032 and Figs. 1–4). The characteristic of Claim 1 that differentiates it from Cited Literature 1 is that it also includes a liquid storage tank that is connected to the flow route with branching holes, but Cited Literature 3 (Japanese Unexamined Patent Application Publication 2003-78271A) discloses a heat-dissipating device for electronic equipment (see Specification, Paragraphs 0028–0032 and Figs. 1–2 and 11–14). This device is provided with a circulating pump 11, a circulating route formed by a tube 9, and a liquid storage tank 13 installed on the heat-dissipating metal panel 10. Also, branching holes 12 and 27, formed in this liquid storage tank 1 [sic] and the circulating route, connect [the tank and the circulating route]. The actions of the liquid storage tank of Cited Literature 3 and the liquid storage tank of this invention are the same; both store the excess air in the circulating route in order to moderate damage to the tube caused by changes in pressure in the whole circulating route. Based on these indications, a person skilled in the art could easily conceive of obtaining the technical plan of Claim 16 by combining Cited Literatures 1 and 3. Thus, it is obvious to a person skilled in the art that the technical plan of Claim 16 can be obtained by combining Cited Literatures 1 and 3, and therefore Claim 16 lacks outstanding substantial characteristics and inventive step, as provided for in Article 22, Paragraph 3 of the Patent Law.

Documents C1-C3 are U.S. counterparts of Document C5.

Any document listed on the attached PTO/SB/08 was cited as being relevant during the prosecution of the corresponding Chinese application. An English translation of the foreign-language documents is not readily available; however, the absence of a translation or an English-language counterpart document does not relieve the PTO from its duty to consider any submitted document (37 CFR §1.98 and MPEP §609). English language abstracts are attached.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

**STATEMENT**

The undersigned hereby states in accordance with 37 CFR §1.97(e)(1) that each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three (3) months prior to filing of this Statement.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 19-0741.

Respectfully submitted,

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